Nomenclature and type specimens in *Eustrephus* R.Br. and *Geitonoplesium* Hook. (Geitonoplesiaceae)

Joseph E. Laferrière

Summary

Laferrière, Joseph E. (1995) Nomenclature and type specimens in *Eustrephus* R.Br. and *Geitonoplesium* Hook. (Geitonoplesiaceae). *Austrobaileya* 4(3): 391–399. Type specimens of specific and infraspecific names in the genera *Eustrephus* and *Geitonoplesium* were examined. Lectotypes are designated for *Eustrephus angustifolius, E. latifolius* var. *brownii, E. latifolius, E. watsonianus, Geitonoplesium cymosum, Geitonoplesium cymosum* subsp. *angustifolium* and *Luzuriaga montana*. Neotypes are designated for *Spiranthera ovata* and *Geitonoplesium asperum*. Diagrams are presented clarifying the relationships between unorthodox infraspecific taxa proposed by J. Schlittler in 1951. No infraspecific taxon recognised by previous authors is here maintained. Descriptions are provided for the family and for each of its two species.

Keywords: Australia, New Guinea, Melanesia, *Eustrephus, Geitonoplesium.*

Joseph E. Laferrière, Biosphere 2, P.O. Box 689, Oracle AZ 85623, U S A

Introduction

Eustrephus R.Br. and *Geitonoplesium* Hook. have been regarded by most recent authors as two monotypic genera. Each contains glabrous, much-branched leafy climbers 1–5 m tall, native to New Guinea, Melanesia, eastern Indonesia and eastern Australia (Schlittler, 1951). Engler & Prantl (1930) included both genera in the Liliaceae. Dahlgren & Clifford (1982) included them in the Philesiaceae, whereas Dahlgren et al. (1985) placed both genera, plus *Luzuriaga*, *Behnia* and *Elachanthera*, in the Luzuriagaceae, separate from the Philesiaceae. Cronquist (1981) and Conran & Clifford (1986) placed them in the Smilacaceae. More recent cladistic and phenetic evidence suggests that while *Eustrephus* and *Geitonoplesium* are closely related to each other, they are only distantly related to *Smilax*, *Luzuriaga* and *Philesia* (Conran, 1987a). Their closest relatives appear to be in the Phormiaceae (Conran, 1989). Some authors have recently placed the two in a separate family, the Geitonoplesiaceae (Dahlgren & Rasmussen, 1983; Conran, 1987a, 1989, 1994).

The authorship of both generic names has long been miscited. Schlittler (1951) referred to them as "*Eustrephus* R.Br. ex Sims" and "*Geitonoplesium* (R.Br.) A.Cunn.," while Conran (1987b) called them "*Eustrephus* R.Br. ex Ker Gawl." and "*Geitonoplesium* A.Cunn. ex R.Br. in Hook". Both were first published in Curtis's Botanical Magazine. Authorship of early articles of this journal is not readily apparent but was discussed by Desmond (1987). The article containing the original description of *Eustrephus* was written by John Bellenden Gawler (also known as John Bellenden Ker). Ker-Gawler (1809) copied the name and description verbatim from an as yet unpublished manuscript by Robert Brown (1810). Hence, Brown should receive full credit because he wrote the description. The article containing the original description of *Geitonoplesium* was written by William J. Hooker (1832). Hooker says the name was suggested by Allan Cunningham. Brown's initials appear after the diagnosis of *Geitonoplesium* because it is copied verbatim from his previously published description of *Luzuriaga* (Brown, 1810). The International Code of Botanical Nomenclature (ICBN, Greuter et al. 1994) specifies that a published name must be accompanied either by a description or diagnosis, or by a direct or indirect reference to a previously published description or diagnosis. Hooker went further than necessary

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in copying the entire text of the published description to which he was referring, but this should not negate his authorship. Hence the preferred citation is "A. Cunn. ex Hook."

Each genus contains a single species. Both species are highly variable, especially in leaf morphology. Leaves of both species can vary from narrowly linear to lanceolate or even ovate (Conran, 1987b). As a result, many specific and infraspecific names have been published. Type specimens of many of these names have long been unknown. Others have been miscited in the literature. I examined the known types of most of these names, and searched for potential lectotypes of those for which no type has been designated.

Schlittler (1951) divided each of the two species into several infraspecific taxa. He divided each species into two subspecies, two varieties, two subvarieties, two forms, and two subforms. For *E. latifolius*, subspecies were distinguished by leaf shape, varieties by filament structure, subvarieties by number of flowers per fascicle, forms by flower colour, and subforms by the degree of fimbriation of the petal margins. For *G. cymosum,* subspecies were distinguished by leaf shape, varieties by inflorescence shape, subvarieties by leaf thickness, forms by flower colour, and subforms by whether the stems are smooth or scabrous. His names are validly published, as they are accompanied by Latin diagnoses and designations of type material. However, Schlittler did not envision his infraspecific taxa as being arranged hierarchically. For example, following his descriptions there are photographs of herbarium specimens. His Figures 66 and 67 are labelled " *Geitonoplesium cymosum* subsp. *macrophyllum* var. *timorense*, whereas Figures 68 and 69 are called "*Geitonoplesium cymosum* subsp. *angustifolium* var. *timorense*". This is despite the fact that only one description and only one type was accorded the name "*G. cymosum* var. *timorense*". Schlittler's published specimen listings and his handwritten notes on many specimens bear similar unorthodox formulae.

A system such as Schlittler envisioned might have certain advantages, but it is not consistent with the current ICBN. The type of *G. cymosum* var. *timorense* has lanceolate rather than narrowly linear leaves. The specimen bears a note in Schlittler's handwriting assigning it to *G. cymosum* subsp. *macrophyllum*. Hence, there can be no such variety within *G. cymosum* subsp. *angustifolium* despite his photograph to the contrary. Using similar reasoning, I examined Schlittler's type specimens to elucidate the true relationship of his taxa. The taxonomic system thus created is shown in **Figures 1** and **2.** *Eustrephus latifolius* var. *angustifolius* (R.Br.) Benth. and *E. latifolius* var. *intercedens* Domin are synonymous with Schlittler's *E. latifolius* subsp. *angustifolius*, whereas and *Luzuriaga latifolia* var. *uniflora* Hallier f. is synonymous with *E. latifolius* var. *latifolius*, using Schlittler's distinguishing characters. The type of *G. cymosum* forma *album* contains a note in Schlittler's handwriting indicating the specimen belonged to "var. aff. *paniculatum*". This might either imply that he considered the specimen intermediate between the two varieties, or that it belonged to a third, unnamed variety. A few of the taxa could not be assigned to taxa at the next higher level because of conflicting characters.

All of Schlittler's names are legitimate. None is a nomen superfluum. The ICBN defines a nomen superfluum as a name applied to a taxon which, as circumscribed by its original author, includes "the holotype or all the syntypes or the previously designated lectotype of another name which ought to have been adopted". Neither *E. latifolius* nor *G. cymosum* has a holotype or syntypes, and until present neither has had a correctly designated lectotype. Thus Schlittler's names are legitimate and might hypothetically be revived. This is true even of those names synonymized with autonyms in **Figures 1** and **2** because a future taxonomist might use different characters to circumscribe the taxa concerned.

Schlittler himself considered many of his taxa to be clinal extremes rather than discontinuous entities. Several of the characters used in distinguishing Schlittler's taxa are affected by elevation, sunlight and other environmental factors, or by the age of the plant (Conran, 1987b). Sometimes material

belonging to different taxa can be found on the same specimen (Conran, 1987b). Hence it appears that all of Schlittler's names should be reduced to synonymy, and each species regarded as a single polymorphic taxon.

Synonymy is given as follows. Lectotypes at BM were selected by Dr. William T. Stearn.

Geitonoplesiaceae R.M.T.Dahlgren ex J.G. Conran, Telopea 6: 39. (1994) Geitonoplesiaceae R.M.T. Dahlgren, Bot. J. Linn. Soc. 80: 98 (1980), nomen nudum. **Type:** *Geitonoplesium* Hook.

Glabrous, hermaphroditic, perennial, much-branched leafy climbers or subshrubs up to 5 m tall. Stems woody below, thin and flexuous above, green, much branched, twining, terete to compressed. Leaves alternate, distichous, with a prominent to obscure midrib, sessile or with a short petiole, sometimes sheathing at the base, lanceolate to ovate or sometimes linear; veins numerous, parallel with few or no cross veins; midrib prominent; spines and stipules lacking; leaves reduced to scales under each branch. Inflorescence an axillary fascicle or a loose terminal cyme or panicle; pedicel articulate immediately under the flower. Flowers small, perfect, actinomorphic, campanulate, hypogynous, often pendulous; perianth segments 6, oblong, spreading, equal in the length, white or greenish to pink or pale violet, free almost to the base or fused, often prolonged into a pericladium below, nectiferous at the base; corona absent; sepals firm, valvate in bud, shortly hood-shaped at apex; petals flat, obtuse, slightly imbricate, the margins thin and entire; stamens 3 + 3; filaments free or fused at the base, hypogynous, not exceeding the perianth; anthers oblong-linear, bilocular, basifixed, introrse, sagittate at base, erect, yellow, poricidal; ovary superior, trilocular with axile placentae; ovules few, anatropous or campylotropous, crassinucellate; style filiform; stigma punctate. Fruit a berry or capsule. Seeds several, rounded to angular-crescentic, black, shiny, sometimes strophiolate; endosperm copious, lacking starch; embryo linear.

Key to the Genera

1. Flowers in axillary clusters arising from a globose to oblong cluster of imbricate scales; petals ciliate; filaments broad, flat, fused; roots often tuberous; fruit orange, dehiscent ..... **Eustrephus**

   Flowers in terminal cymes or panicles; petal margins entire; filaments filiform, separate; roots fibrous; fruit black, indehiscent ..... **Geitonoplesium**

Eustrephus R. Br. in Ker Gawl., Bot. Mag. 31: t. 1245 (1809). *Luzuriaga* Sect. *Eustrephus* Hallier f., Nova Guinea 8: 992 (1914), nomen nudum; *Luzuriaga* Sect. *Eustrephus* Hallier f. ex K. Krause in Engl. & Prantl, Nat. Planzenfam. II, 15a: 380 (1930). **Type:** holo: *Eustrephus latifolius* R.Br.

Spiranthera Raf., Flora Telluriana 4: 137 (1836), nom. illeg., non A. St.-Hil. (1823). **Type:** holo: *Spiranthera ovata* Raf.

Small shrubs or twining climbers, 1–5 m tall. Roots fusiform, sometimes tuberous. Leaves non-resupinate, sessile or nearly so, broadly ovate to lanceolate or narrowly linear, 2–20 cm long, 0.2–5.0 cm wide, firm, longitudinally striate-nerved, with costa scarcely distinct; apex usually acute. Inflorescence an axillary cymose bundle with 1–6 flowers; pedicels filiform but rigid, persistent, 5–18 mm long, with an ovate bract at the base, these scarious and imbricate. Flowers with perianth segments oblong, nearly equal, about 6 mm long; sepals elliptical-oblong, acute, 7–9-nerved, convex, firm, shortly hood-shaped at the apex; petals elliptical, thinner than sepals, flat, obtuse, bearing yellow or pellucid markings, fimbriate; filaments short, flat, connate at base; pollen monosulcate. Fruit a yellow, globular or rarely pyriform fleshy capsule 0.7–2.0 cm in diameter. Seeds 8–12, subspherical, evenly rounded to obtusely angled, strophiolate. 2n=18 (Stenar 1952).

A single species, native to eastern Australia, Melanesia, and eastern Indonesia.

Eustrephus latifolius R. Br. in Ker Gawl., Bot. Mag. 31: t. 1245 (1809). *Luzuriaga latifolia* (R.Br.) Poir., Encyc. Suppl. 3:535 (1813); *Eustrephus brownii* F.Muell., Fragm. 7: 73 (1870), nom. illeg. **Type:** Australia, New South Wales. Port Jackson, *R. Brown* 5663 *pro parte* (lecto, here designated: BM [photocopy!]). [The sheet in question contains two specimens. The one on the lower half of the sheet is selected as lectotype. Schlittler's (1951) designation of the illustration in Bot. Mag. 31, t. 1245, as lectotype is inappropriate because it is not based on Brown's original material.]

Eustrephus angustifolius R.Br., Prod. 281 (1810); *Luzuriaga angustifolia* (R.Br.) Poir., Encycl. Suppl. 3: 536 (1813); *Eustrephus brownii* var. *angustifolius* (R.Br.) Baker, J. Linn. Soc. 14: 573 (1875), nom. invalid., pro syn.; *Eustrephus latifolius* var. *angustifolius* (R.Br.) Benth., Fl. Austral. 7: 18 (1878); *Luzuriaga latifolia* var. *angustifolia* (R.Br.) Hallier f. in H.A. Lorentz, Nova Guinea 8: 993 (1914); *Eustrephus latifolius* subsp. *angustifolius* (R.Br.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 213 (1951). **Type:** Australia, Queensland. Port Curtis District: Shoalwater Bay, No. 46, *R. Brown* 5664 (lecto, here designated: BM [photocopy!]). [This supersedes Schlittler's neotype at Z.]

Eustrephus leucanthus Hassk., Pl. Jav. Rar. 115 (1815); *Eustrephus latifolius* forma *leucanthus* (Hassk.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 214 (1951). **Type:** Indonesia, West Java. Bogor, *C.A. Backer* 31600 (neo: BO! [Schlittler, Ber. Schweiz. Bot. Ges. 61: 214 (1951)]).

Spiranthera ovata Raf., Flora Telluriana 4: 31 (1836). **Type:** Australia, Queensland. Cook District: Daintree River, *S.F. Kajewski* 1456 (neo, here designated: A!).

[Rafinesque's original specimen, like most of his collection, was apparently destroyed after his death (Merrill 1949, Stuckey 1971; F. Armstrong, PH, in litt.). This name is not a nomen superfluum (cf. Conran & Clifford 1986). Rafinesque's description translates, in part, as " similar to *E. latifolius* but with ovate leaves". This specifically excludes the lectotype of *E. latifolius* because the specimen does not have ovate leaves. The neotype here designated matches the diagnosis.]

Eustrephus watsonianus Miq., Linnaea 18: 84 (1844); *Eustrephus latifolius* subsp. *watsonianus* (Miq.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 213 (1951). **Type:** Australia, New South Wales [*fide* Miquel, loc. cit.], *A. Cunningham et al.* 169 (lecto, here designated: U!). [This supersedes Schlittler's neotype at Z.]

Eustrephus amplexifolius Schnitzl., Iconogr. famil. nat. regni. veget. 1 t. 55c (1849). **Type:** lecto: In Iconogr. famil. nat. regni. veget. 1 t. 55c, figs. 17–20! [Conran & Clifford, Flora of Australia 46: 192 (1986)]

Luzuriaga latifolia var. *uniflora* Hallier f. in H.A. Lorentz, Nova Guinea 8: 993 (1914); *Eustrephus latifolius* subvar. *uniflorus* (Hallier f.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 214 (1951). **Type:** South New Guinea: *Koch* L15 (holo: L!).

Eustrephus latifolius var. *intercedens* Domin, Bibiloth. Bot. 20(85): 516 (1915). **Type:** Australia, Queensland. Moreton District: Tambourine Mt., *Domin* 2289 (holo: PR [photo at A!]).

Eustrephus latifolius var. *intermedius* Schlittler, ibid., 214 (1951). **Type:** Indonesia, West Java. Batavia, Weltevreden, *C.A. Backer* 26448 (holo: BO!).

Eustrephus latifolius var. *brownii* Schlittler, Ber. Schweiz. Bot. Ges. 61: 214 (1951). **Type:** Australia, Victoria. East Gippsland, *F. Mueller s.n.* (lecto: L; iso: BO!). [Schlittler called this specimen "topotypus" and listed *E. brownii* F.Muell. as purported basionym. However, an

illegitimate name cannot serve as basionym. Hence Schlittler's name must be ascribed to him alone.]

Eustrephus latifolius subvar. *fasciculatus* Schlittler, ibid., 214 (1951). **Type:** Australia, Queensland. North Kennedy District. Rockingham's Bay, *F. Mueller s.n.* (holo: L!).

Eustrephus latifolius forma *rubens* Schlittler, ibid., 214 (1951). **Type:** Indonesia, West Java. Bogor, Kebun Raya Botanical Garden, *Exemplar cult. Hort. Bog.* XC33a (holo: BO!).

Eustrephus latifolius subforma *integerrimus* Schlittler, ibid., 214 (1951). **Type:** New Caledonia, *M.Pancher s.n.* (holo: BO!).

Eustrephus latifolius subforma *fimbriatus* Schlittler, ibid., 214 (1951). **Type:** Australia, Queensland. Cook District: Daintree, *L.J.Brass & C.T.White* 326 (holo: SING [photo in Ber. Schweiz. Bot. Ges. 61:215!], iso: BRI [photocopy!], GH!).

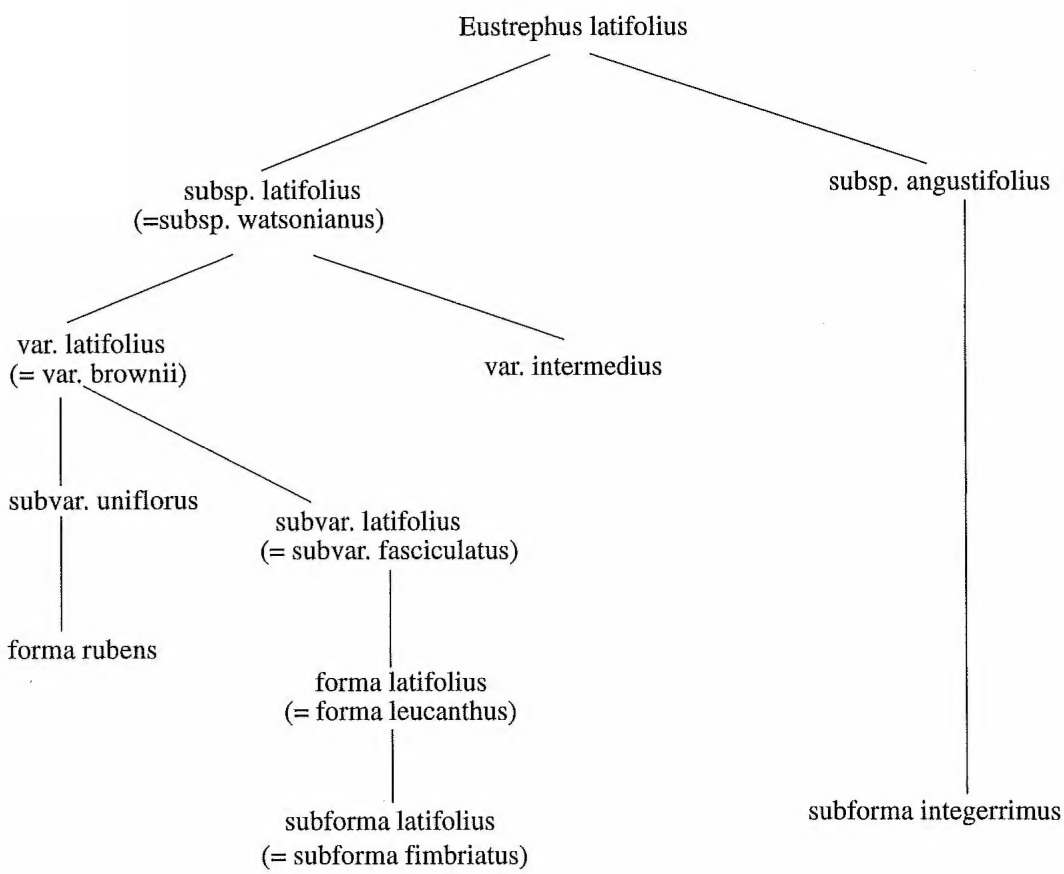

Fig. 1. Schlittler's (1951) taxonomy of *Eustrephus latifolius*.

Geitonoplesium A.Cunn. ex Hook., Bot. Mag. 59: t. 3131 (1832). *Luzuriaga* Sect. *Geitonoplesium* (Hook.) Hallier f., Nova Guinea 8: 991 (1914), nomen nudum; *Luzuriaga* Sect. *Geitonoplesium* (Hook.) Hallier f. ex K. Krause in Engl. & Prantl, Nat. Pflanzenfam. II, 15a: 379 (1930). *Calcoa* Salisb., Gen. Pl. Fragm. 67 (1866), nom. superfl. **Type:** lecto: *Geitonoplesium cymosum* (R.Br.) Hook. [Conran & Clifford, Fl. Australia 46: 194 (1986)]

Luzuriaga auct. non Ruiz & Pavon; R.Br., Prod. 281 (1810). [Cited by Engler & Prantl (1930) and Schlittler (1951) as an illegitimate homonym of *Luzuriaga* Ruiz & Pavon, Fl. Peruv. 3:65 (1802). Brown provided a description including only his own Australian collections, and commented that it might be a separate genus. However, he did credit Ruiz & Pavon for the name, and made no attempt to assign their South American species to a different genus. Therefore, this cannot be considered a homonym.]

Twining climber, 1–5 m tall. Roots fibrous. Leaves resupinate, with a short twisted petiole, broadly ovate to lanceolate or narrowly linear, 5–20 cm long, 0.5–5.0 cm wide, rigid, with a prominent to obscure midrib, the apex obtuse, acute or apiculate. Inflorescence a small, loose terminal cyme or panicle of 1-many flowers, pedicel 0.5–3.0 cm long, with a small bract. Flowers with perianth segments 6–8 mm long, white, green or pink to purplish, sometimes streaked, oblong, distinctly nerved, equal in length, free almost to the base; pericladium short and subattenuate or absent; sepals firm, shortly hood-shaped at apex; petals flat, obtuse, slightly imbricate, the margins thin and entire, filaments filiform, separate, geniculate below anther; pollen trichotomosulcate. Fruit a blue-black, globular, succulent, indehiscent berry 8–15 mm in diameter. Seeds 1–10, black, trigono-ovoid. 2n=20 (Conran 1985).

A single species, native to eastern Australia, Melanesia, and eastern Indonesia.

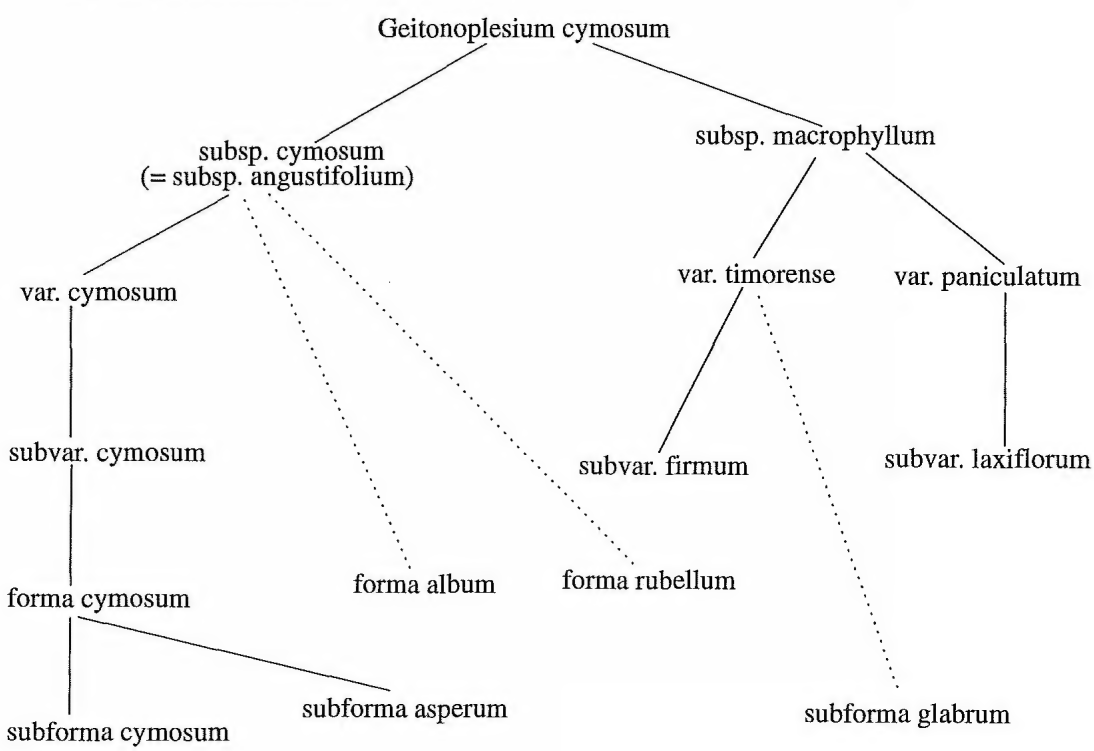

Fig. 2. Schlittler's (1951) taxonomy of *Geitonoplesium cymosum*

Geitonoplesium cymosum (R. Br.) A. Cunn. ex Hook., Bot. Mag. 59: t. 3131 (1832). *Luzuriaga cymosa* R.Br., Prod. 282 (1810). **Type:** Australia, New South Wales. Port Jackson, *R. Brown 5665* (lecto, here designated: BM [photocopy!]). [Schlittler's (1951) choice of the illustration in Bot. Mag. 59: t. 3131. as lectotype is inappropriate because it is not based on Brown's original material].

Luzuriaga montana R.Br., Prod. 282 (1810); *Geitonoplesium montanum* (R.Br.) Hook., Bot. Mag. 59: sub t. 3131 (1832). **Type:** Australia, New South Wales: Port Jackson, *R.Brown* 5666 (lecto, here designated: BM [photocopy!]).

Geitonoplesium asperum A.Cunn. in Hook., Bot. Mag. 59: sub t. 3131 (1832). *Geitonoplesium cymosum* subforma *asperum* (A.Cunn.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 229 (1951). **Type:** Papua-New Guinea. Arfak Range, *K.Gjellerup* 1078 (neo, L [photo in Nova Guinea 8, tab. 181!]; iso: BO!).

[Schlittler (1951) erroneously called this lectotype; the specimen in question was collected over 80 years after the original description was published. His erroneous lectotypification is corrected to represent a neotypification under article 9.8 of the ICBN. Conran & Clifford's (1986) designation of the illustration in Bot. Mag. 59, t. 3131 is also incorrect. The illustration in question is obviously intended to represent *G. cymosum*, as evidenced by the title of the article and by the apparently smooth stems in the illustration. I unsuccessfully attempted to find potential lectotype material at K and BM.]

Eustrephus timorensis Ridl. in H.O. Forbes, Nat. Wand. East. Archipel., 520 (1885); *Luzuriaga timorensis* (Ridl.) Hallier f. in H.A. Lorentz, Nova Guinea 8: 992 (1914); *Geitonoplesium cymosum* var. *timorense* (Ridl.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 228 (1951). **Type:** Indonesia, Timor. Turskain, *H.O.Forbes* 3530 (holo: K; iso: BO!).

Luzuriaga laxiflora Hallier f. in H.A. Lorentz, Nova Guinea 8: 991 (1914); *Geitonoplesium cymosum* subvar. *laxiflorum* (Hallier f.) Schlittler, Ber. Schweiz. Bot. Ges. 61: 228 (1951). **Type:** Papua-New Guinea. Hellwig Range, *von Roemer* 932 (holo: L! [photo in Nova Guinea 8, tab. 180!]; iso: BO!).

Luzuriaga aspericaulis Hallier f. in H.A. Lorentz, Nova Guinea 8: 991 (1914). **Type:** Papua-New Guinea. Arfak Range, *K.Gjellerup* 1078 (holo: L [photo in Nova Guinea 8, tab. 181!]; iso: BO!).

Geitonoplesium cymosum subsp. *angustifolium* Schlittler, Ber. Schweiz. Bot. Ges. 61: 227 (1951). **Type:** Slovakia. Bratislava, *Pl. ex Herb. Trevirani, cult. Hort. Wratislav,* 1828 (lecto, here designated: L! [called "neotypus" by Schlittler]).

[see note under nomina excludenda, below]

Geitonoplesium cymosum subsp. *macrophyllum* Schlittler, ibid., 228 (1951). **Type:** Indonesia, Maluku. Buru Island, *Toxopeus* 435 (holo: L! [photo in Ber. Schweiz. Bot. Ges. 61: 230!]; iso: BO!).

Geitonoplesium cymosum var. *paniculatum* Schlittler, ibid., 228 (1951). **Type:** Papua-New Guinea. Wissel Lake Region, *P.J.Eyma* 5393 (holo: BO! [photo in Ber. Schweiz. Bot. Ges. 61: 231!]).

Geitonoplesium cymosum subvar. *firmum* Schlittler, ibid., 228 (1951). **Type:** Papua-New Guinea. Wissel Lake Region, *P.J.Eyma* 4368 (holo: BO!).

Geitonoplesium cymosum forma *album* Schlittler, ibid., 229 (1951). **Type:** Australia, Queensland. Moreton District: Springbrook, *C.E.Hubbard* 4236 (holo: L!).

Geitonoplesium cymosum forma *rubeullum* Schlittler, ibid., 229 (1951). **Type:** Solomon Islands. Guadalcanal, *S.F.Kajewski* 2641 (holo: BO!).

Geitonoplesium cymosum subforma *glabrum* Schlittler, ibid., 229 (1951). **Type:** Indonesia, Sumba Island. Kanangar, *Grevenst* 192 (holo: BO!).

Excluded names

Eustrephus celebicus (Blume) D. Dietr., Syn. Pl. 2: 1117 (1840). [= *Rhuacophila javanica* Blume]

Eustrephus javanicus (Blume) D. Dietr., ibid. (1840). [= *Rhuacophila javanica* Blume]

Geitonoplesium angustifolium (W.Aiton) K. Koch, Ind. Sem. Hort. Berol., App. 10, 1854. - *Medeola angustifolia* J.Mill. ex W. Aiton, Hort. Kew. 490 (1789).

[Koch's description is clearly based on a narrow-leaved specimen of *G. cymosum*. However, he lists two apparent synonyms: *Eustrephus angustifolius* Link, Enum. Pl. Hort. Berol. 1: 340 (1821); and *Medeola angustifolia* Delile in Redouté, Liliaceae 7, t. 393 (1813). Neither Link nor Delile was attempting to describe a new species. Link (loc. cit.) credits the name *E. angustifolius* to R. Brown (see above). The Redouté illustration accompanying Delile's (loc. cit.) description appears to be of *G. cymosum*, but the description itself differs from this taxon in several characters. Delile did not intend his description as representing a new taxon, but as a redescription of the South African plant *M. angustifolia* W. Aiton. Koch made no attempt to assign the types of these names to other taxa. Because Aiton's name is the oldest legitimate synonym listed by Koch for his taxon, it must be regarded as basionym. Aiton's type must therefore be regarded as Koch's type. However, when Schlittler (1951) reduced the taxon described by Koch to the rank of subspecies, he credited Koch with the basionym but added "*Medeola angustifolia* Redouté, ... excl. descr." (sic). Thus he appeared to be including Redouté's illustration within the boundaries of his taxon, but excluding the material covered by Delile's description. Schlittler thus clearly intended to exclude Aiton's taxon, and the South African type of his name, from his circumscription of his subspecies. Schlittler also listed *E. angustifolius* as a synonym, but his key places its type specimen in *Eustrephus*. Schlittler's taxon thus has a new name attributable solely to him.]

Geitonoplesium humile Hassk., Cat. Hort. Bot. Bogor., 31 (1844). [=*Asparagus* sp.]

Geitonoplesium scandens Hassk., ibid. (1844). [= *Asparagus* sp.]

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References

Brown, R. (1810). *Prodromus florae Novae Hollandiae et Insulae Van-Diemen*. Richard Taylor, London.

Conran, J. G. (1987a). A phenetic study of the relationships of *Drymophila* R.Br. within the reticulate-veined Liliiflorae. *Australian Journal of Botany* 35: 283–300.

—— (1987b). Variation in *Eustrephus* R.Br. ex Ker Gawler and *Geitonoplesium* Cunn ex R.Br. (Asparagales: Luzuriagaceae). *Muelleria* 6: 363–369.

—— (1989). Cladistic analyses of some net-veined Liliiflorae. *Pl. Sys. Evol.* 168: 123–141.

—— (1994) . The Geitonoplesiaceae Dahlgren ex Conran (Lilliflorae: Asparagales): a new family of monocotyledons. *Telopea* 6:39–41.

Conran, J.G. & Clifford, H.T.. (1986). Smilacaceae. *Flora of Australia*, 46: 180–195.

Cronquist, A. (1981). *An integrated system of classification of flowering plants*. New York: Columbia University Press.

Dahlgren, R.M.T., & Clifford, H.T. (1982). *The monocotyledons: a comparative study*. Academic Press, London.

DAHLGREN, R.M.T., CLIFFORD, H.T., & YEO, P.F. (1985). *The families of the monocotyledons: structure, evolution, and taxonomy*. Berlin: Springer-Verlag.

DAHLGREN, R.M.T. & RASMUSSEN, F.N. (1983). Monocotyledon evolution characters and phylogenetic estimation. In: M.K. Heckt, B. Wallace, & G. T. Prance (eds.), *Evolutionary biology*, vol. 16, pp. 255–395. Plenum, New York.

DESMOND, R. (1987). *A celebration of flowers: two hundred years of Curtis's Botanical Magazine*. Kew: Royal Botanic Gardens.

ENGLER, A., & PRANTL, K. (1930). *Die Naturlichen Pflanzenfamilien, 2nd edition, vol. 15*. Leipzig: Verlag von Wilhelm Engelmann.

GREUTER, W., et al. (eds.) (1994). *International Code of Botanical Nomenclature*. Konigstein: Koeltz Scientific Books.

HOOKER, W. J. (1832). *Geitonoplesium cymosum*: cymose Geitonoplesium. *Botanical Magazine* 59, t. 3131.

KER-GAWLER, J. B. (1809). *Eustrephus latifolius*: broadest-leaved *Eustrephus*. *Botanical Magazine* 31, t. 1245.

MERRILL, E. D. (1949). *Index Rafinesquianus*. Jamaica Plain: Arnold Arboretum, Harvard University.

SCHLITTLER, J. (1951). Die Gattungen *Eustrephus* R.Br. ex Sims und *Geitonoplesium* (R.Br.) A.Cunn. Morphologisch-anatomische Studie mit Berücksichtigung der systematischen, nomenklatorischen und arealgeographischen Verhältnisse. *Berichte der Schweizerischen Botanischen Gesellschaft* 61: 175–239. Reprint, 1951: *Mitteilungen aus dem Botanischen Museum der Universität Zurich* 189: 175–239.

STENAR, H. (1952). Notes on the embryology and anatomy of *Luzuriaga latifolia* Poir. *Acta Horti Bergiani* 16:219–232.

STUCKEY, R. L. (1971). C. S. Rafinesque's North American vascular plants at the Academy of Natural Sciences of Philadelphia. *Brittonia* 23: 191–208.